

Name \_\_\_\_\_

## Study Guide: Ecosystems

1. Factors in the environment that are living or are derived from living things are considered \_\_\_\_\_, while nonliving chemical and physical factors of the environment are considered \_\_\_\_\_.
2. The smallest group in the classification system of organisms that share similar characteristics and interbreed in nature is called \_\_\_\_\_. A group of individuals of different, interacting species in one place at one time is called a \_\_\_\_\_, while a group of individuals of the same species is called a \_\_\_\_\_.
3. A community of organisms interacting with their abiotic environment is called a/an \_\_\_\_\_. A group of ecosystems that have the same climate and similar dominant organisms is a/an \_\_\_\_\_.
4. Give an example of a plant that is NOT a producer. \_\_\_\_\_
5. Organisms that make their own food using sources of energy and carbon from their physical environment are called \_\_\_\_\_ while organisms that cannot synthesize their own food and are dependent on complex organic substances for nutrition are called \_\_\_\_\_. Organisms that obtain their nutrients and energy mainly by feeding on dead organisms are called \_\_\_\_\_. Organisms that feed on other live organisms for carbon and energy are called \_\_\_\_\_.
6. Primary consumers feed directly on \_\_\_\_\_. Secondary consumers feed on \_\_\_\_\_.
7. \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ are three examples of primary consumers. \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ are three examples of secondary consumers. \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ are three examples of scavengers.
8. \_\_\_\_\_ only eat plant material, \_\_\_\_\_ only eat other animals, and \_\_\_\_\_ feed on both plants and animals.
9. An animal that attacks and feeds upon another animal is a \_\_\_\_\_, while the animal that is killed and eaten by another animal is the \_\_\_\_\_.
10. All food chains/webs must start with \_\_\_\_\_. Only \_\_\_\_\_% of the energy consumed by an organism is passed through each trophic level from one organism to another. Energy flows in a one-way direction through ecosystems. It is not recycled, and therefore must continually be re-supplied with \_\_\_\_\_.
11. Draw a food web using the following organisms: grass, fox, mouse, rabbit, coyote  
*NOTE: Trace the flow of energy by including all necessary arrows and be sure that they are pointing in the correct direction.*

12. The fit between organisms and their ecosystems that helps them to survive and reproduce is called an \_\_\_\_\_, and the process whereby **natural** factors tend to eliminate the members of the population that are **least** adapted is called \_\_\_\_\_.

13. \_\_\_\_\_ is the process of **intentionally** modifying genes to bring about the expression of a different characteristic. \_\_\_\_\_ are **accidental** changes in a sequence of DNA that may be harmful or beneficial and can be caused by radiation, chemicals, or viruses.

14. Explain 2 PROS and 2 CONS of genetic engineering.

Pros:

- 1.
- 2.

Cons:

- 1.
- 2.

15. Explain 3 specific examples of adaptations that help plants or animals to defend against predators.

- 1.
- 2.
- 3.

16. Explain 3 specific examples of adaptations that help animals attract mates or plants pollinate/disperse seeds.

- 1.
- 2.
- 3.

17. \_\_\_\_\_ is a situation in which two different species live together in close association. The three types are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

18. In \_\_\_\_\_, one organism benefits by taking nutrients from the organism that is harmed. Unlike predators, they typically do NOT kill their hosts. In \_\_\_\_\_, one species benefits but the other is neither helped nor harmed.

19. \_\_\_\_\_ is a relationship in which both species benefit from each other. Examples of this type of relationship include \_\_\_\_\_ and \_\_\_\_\_ as well as \_\_\_\_\_ and \_\_\_\_\_.

20. The \_\_\_\_\_ states that when 2 species compete directly for resources, one eventually excludes the other from the area.

21. The 3 alternatives to direct competition are to \_\_\_\_\_, \_\_\_\_\_, or \_\_\_\_\_.

22. The place where an organism naturally lives is its \_\_\_\_\_, and the functional role of a species, including its activities and relationships, is called its \_\_\_\_\_.

23. Species \_\_\_\_\_ provides ecosystem stability.

24. Competition between members of the SAME species is called \_\_\_\_\_ competition. Competition between members of DIFFERENT species is called \_\_\_\_\_ competition. A behavioral characteristic to mark and defend a territory against other members of the same species is called \_\_\_\_\_.

***NOTE: YOU ALSO NEED TO BE ABLE TO COMPARE/CONTRAST BIOMES LIKE YOU DID IN YOUR BROCHURE.***

25. The \_\_\_\_\_ has soil that is thin and nutrient poor, is hot and very wet, and is home to more species than all of the other biomes combined. The \_\_\_\_\_ also has thin, nutrient poor soil, but is very dry with hot days and cold nights. The \_\_\_\_\_ is also hot and has a dry season and a wet season.

26. The biome where we live that has fertile soil and deciduous and coniferous trees is the \_\_\_\_\_. The other biome with fertile soil but has lots of lush grasses is the \_\_\_\_\_. The \_\_\_\_\_ has thin soil that is perpetually frozen and has long, cold dark winters with strong winds. The \_\_\_\_\_ is also known as the taiga or boreal forest.

27. The change in the species that occupy an ecosystem is called \_\_\_\_\_ and is caused by a change in one or more factors that benefits some species at the expense of others. The last stage in ecological succession in which populations of all organisms are in balance with each other and with existing abiotic factors is called a/an \_\_\_\_\_.

28. The reestablishment of a climax ecosystem in an area from which it was previously cleared is called \_\_\_\_\_. The gradual establishment of a climax ecosystem in an area that has not been occupied before (such as a rock face) is called \_\_\_\_\_.

29. A species whose role is essential for the survival of many other species in an ecosystem is called a \_\_\_\_\_. Removing this species \_\_\_\_\_ species diversity.

30. \_\_\_\_\_ is the minimum number of individuals required to maintain a healthy population. If a population falls near this number, it is considered \_\_\_\_\_. If the population of the species is declining rapidly, it is considered \_\_\_\_\_.

Make sure to also review the natural selection goldfish activity.

- know how to read the graph
- know why populations changed
- be able to determine if the population **increased or decreased**
- be able to explain why

Make sure to also review the predator / prey simulation.

- know how to read the graph
- know why populations changed
- be able to determine if the population **increased or decreased**
- be able to explain why